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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,471	01/15/2004	Min-Chul Suh	1514.1039	4143

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STEIN, MCEWEN & BUI, LLP
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WASHINGTON, DC 20005

EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/757,471

Applicant(s)

SUH, MIN-CHUL

Examiner

Dawn Garrett

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 and 21 is/are allowed.
- 6) ☒ Claim(s) 11-16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/15/04 & 7/20/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office action is responsive to the amendment filed December 22, 2006. Claims 1, 3, and 5 were amended. Claim 17 was canceled. Claim 21 was added. Claims 1-16 and 18-21 are pending.
2. It is noted that the claims use the more conventional terms "hole transport" and "electron transport" instead of the terms "hole transfer" and "electron transfer" as used in the specification. The terms are recognized in the art as synonymous terms; however, it is suggested that the same terms be used both in the specification and in the claims for clarity.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. The rejection of claims 1, 2, 4-7, 9 and 10 under 35 U.S.C. 102(b) as being anticipated by Seo et al. (US 2004/0146744 A1) is withdrawn due to the amendment of claim 1.
5. The rejection of claims 1-5 under 35 U.S.C. 103(a) as being unpatentable over JP 2000-150169 in view of Fujita et al. (EP 1017118 A2) is withdrawn due to the amendment of claim 1.
6. Claims 11-16, 19, and 20 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (EP 1017118 A2). Fujita et al. teaches organic electroluminescent elements comprising a light emitting layer between an anode and a cathode. Between the anode and the light emitting layer is a hole transporting layer containing a hole transporting material and an acceptor (with regard to claims 19 and 20). Between the light emitting layer and the cathode is an electron transporting layer containing an electron transporting material and a donor. (See Abstract). Electron transporting material blocks holes, so this layer is deemed to read upon a "hole blocking layer" (see remarks in "Response to Arguments" section below for further

Art Unit: 1774

clarification). Materials for the acceptor include compounds having a nitro group such as TNF (trinitrofluorenone) and DNF (dinitrofluorenone) (see par. 48) per the elected acceptor species comprising an aromatic compound with a nitro group. With regard to the electron donor material, Fujita et al. teaches condensed polycyclic compounds such as pyrene, perylene, anthracene, tetracene, and pentacene (see par. 75) per the elected donor species comprising an aromatic compound with hydrogen. The amount of donor material to electron transporting material (hole blocking material) is 1-20% by weight (see par. 76) per claim 13. The electron transporting layer (hole blocking layer) is made by a method such as spin coating method per claim 15 (see par. 77). Fujita et al. teaches an electron transport layer (hole blocking layer) of 30 nm thickness (see Examples) per claim 16. Although Fujita et al. fails to exemplify devices with all of the taught acceptor materials comprising an aromatic compound with a nitro group and donor materials comprising aromatic compounds with hydrogen, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a device as recited in the claims and to have selected the electron acceptor and electron donor materials under consideration, because Fujita et al. teaches all of the required components of the devices of the claims.

Allowable Subject Matter

7. Claims 1-10 and 21 are allowed. The claims comprise subject matter that was previously indicated as allowable. Claim 18 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach the specific further layer required by claim 18 in combination with the requirements of independent claim 11:

Response to Arguments

8. Applicant's arguments filed December 22, 2006 have been fully considered but they are not persuasive with regard to the rejection of claims 11-16, 19 and 20 over Fujita et al. (EP 1017118 A2).

Applicant argues "Fujita does not disclose or suggest 'an electron injecting layer' as recited in independent claim 11". The examiner submits that claim 11 does not require an electron injecting layer. Claim 11 sets forth "at least one layer selected from a hole blocking layer and an electron injection layer". Fujita does teach an electron transporting layer comprising an electron donor material and one of ordinary skill in the art recognizes that an electron transporting layer has hole blocking properties as evidenced by Kobori (US 2002/0038867) and accordingly, the electron transporting layer of Fujita is considered to read upon the "hole blocking layer" of the claims. Since claim 11 does not require a separate and distinct electron transporting layer in addition to a hole blocking layer, the electron transporting layer of Fujita is deemed to satisfy all of the requirements of a layer having a hole blocking function as required by claim 11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a hole blocking layer and a electron transport layer as two distinct and separate layers) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The rejected claims require only one layer in the organic film layer other than an emitting layer and the "electron transporting layer"

Art Unit: 1774

taught by Fujita et al. is deemed to teach all of the material requirements of the required layer adjacent the emitting layer.

It is noted that claim 18 does require a separate and distinct electron transport layer in addition to either the hole blocking layer or the electron injecting layer as required by claim 11. Claim 18 has been indicated as comprising allowable subject matter.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571) 272-1523. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1774

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in cursive script, appearing to read "Dawn Garrett".

Dawn Garrett
Primary Examiner
Art Unit 1774